



BCD TO DECIMAL READOUT DRIVER

TYPE
BIP-8211P
BIP-8507P

The BIP-8211P Decoder/Driver provides decimal readout on a standard rectangular NIXIE® Tube, type 8422 (B-5991) from 8 wire 8-4-2-1 binary-coded decimal inputs. Decoder circuitry which accepts logic level separations of 2.3V to 30V is completely solid state, and controls the selection of the NIXIE tube numeral elements. The BIP-8507P drives a plus/minus rectangular NIXIE tube, type B-5992. The modules feature a socket pack construction; i.e., socket and decoder are an integral unit. Height and width dimensions are those of the socket itself, permitting minimum center-to-center spacing of multi-digit displays. Refer to Bulletin 1066 for typical applications and theory of operation. Bezel assemblies for multi-tube displays are described in Bulletin 1020.

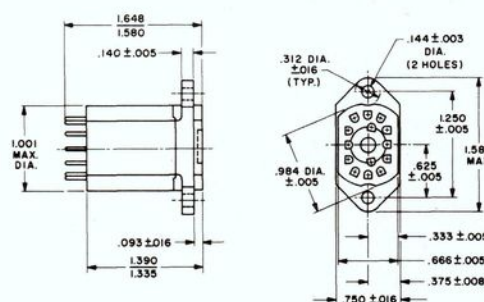


Figure 1. OUTLINE DRAWING

ELECTRICAL SPECIFICATIONS

INPUT REQUIREMENTS (Figure 2)

INPUT SIGNAL BIP-8211P..... 4 bit (8 lines)
8-4-2-1 BCD*
BIP-8507P..... 2 lines
Logic "1" = E_i volts Turn "ON"
Logic "0" = E_o volts $\pm 0.5V$... Turn "OFF"
BCD VOLTAGE LEVELS BCD voltage levels may be any set of two levels within limitations specified under Logic Level Separations.

INPUT CURRENT (Each input line) BIP-8211P... 1.0 ma max.
BIP-8507P... 0.5 ma max.

POWER REQUIREMENTS (Note 3)

DC Supply Voltage Note 5..... $+200 \pm 10$ Vdc
DC Supply Current BIP-8211P 3.7 ma nom.
BIP-8507P 1.5 ma nom.

* Other modules which can accept other BCD codes such as 5-4-2-1, 2-4-2'-1, 4-2-2'-1, Watts, cyclic 20 Gray, etc., are also available. (SEE BULLETIN 1108)

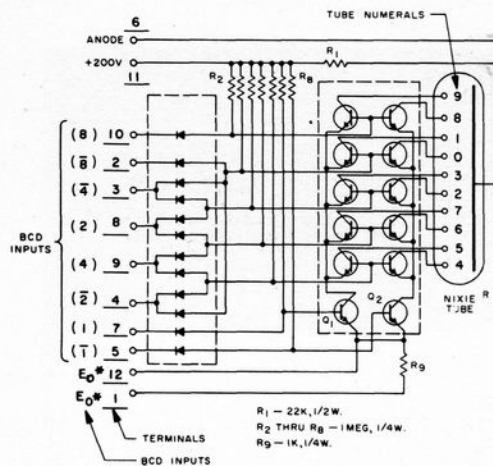
BCD INPUT SIGNAL LEVEL REQUIREMENTS

Bias Terminals (Note 7)	Using Terminal 12 (Note 9)	Using Terminal 1 or 10 (Note 10)
Minimum Logic Level Separation	2.3V to 30V	5.2V to 26V
E_o = Logic "0"	-5.0V to -0.9V	-1.0V to +0.5V
E_i = Logic "1"	+1.4V to +25V	+5.7V to +25V

MECHANICAL CHARACTERISTICS

Connector 12 pin rectangular socket base
Receptacle SK-169 (Figure 4) (Note 4)
Mounting Diagram Figure 5, Note 8
Weight 1 oz. nom.
Basing Diagram Figure 3

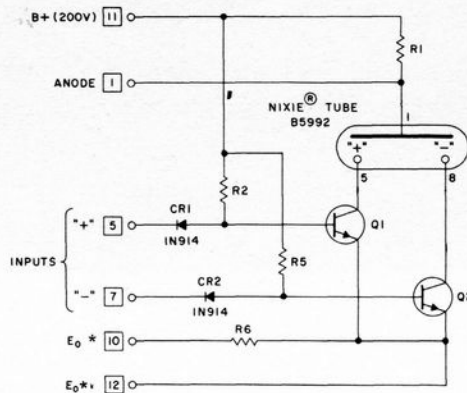
Outline drawing Figure 1
Terminal Connections Table 1
Temperature
Operating $-20^{\circ}C$ to $+85^{\circ}C$
Non-Operating $-50^{\circ}C$ to $+85^{\circ}C$



PIN 12 NOT USED EXCEPT AS NOTED IN APPLICATION BULLETIN NUMBER 1066 FOR SPECIAL APPLICATIONS.

*See Notes 3, 7

Figure 2a. BIP-8211P SCHEMATIC



*See Notes 3, 7

Figure 2b. BIP-8507P SCHEMATIC

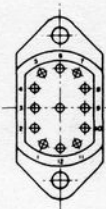


Figure 3. BASING DIAGRAM

NOTE:
A polarizing pin is added to the connector. This pin is not internally connected and mates with terminal 14 of receptacle SK-169.

Figure 3. BASING DIAGRAM

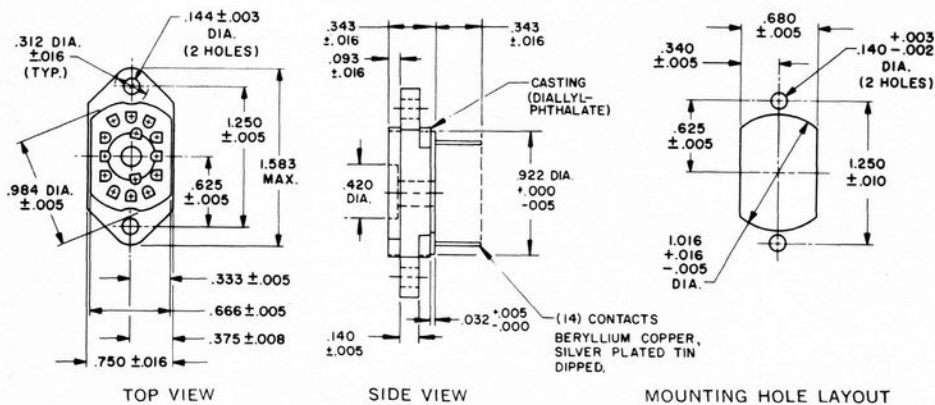


Figure 4. RECEPTACLE SK-169 (Note 4)

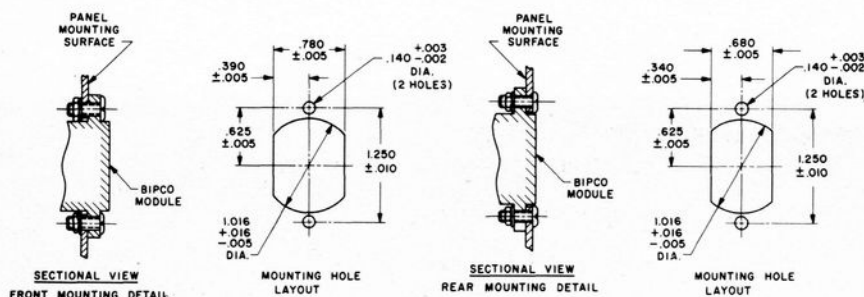


Figure 5. MOUNTING CONFIGURATIONS (Note 8)

TERMINAL	BIP-8211P	BIP-8507P
1	E ₀ *	Note 1
2	BCD 8	—
3	BCD 4	—
4	BCD 2	—
5	BCD 1	"+" plus
6	Note 1	—
7	BCD 1	"—" minus
8	BCD 2	—
9	BCD 4	—
10	BCD 8	E ₀ *
11	+200 Vdc	+200 Vdc
12	*	*

* see Notes 3 and 7.

Table 1. TERMINAL CONNECTIONS

NUMERAL	CODE			
	8	4	2	1
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1

Table 2. BIP-8211P TRUTH TABLE

NOTES

- Pin 6 on BIP-8211P and Pin 1 on BIP-8507P (NIXIE Tube Anode) are used for test purposes only.
- NIXIE tube is not included as part of the module and must be ordered separately.
- D.C. return for the +200V supply is normally connected to the one E₀ input terminal being used.
- Receptacle SK-169 is not part of the module and must be ordered separately.
- For B+ voltages higher than +200 Vdc, a resistor (R) must be added in series with R₁ (see Figures 2a and 2b) so that the voltage at pin 11 is 200V ± 10V. For example, to operate the BIP-8211P at +300 Vdc, R is calculated by dividing the voltage difference, 100V (300-200) by the nominal current, 3.7 ma. This gives a result of 27K (100/3.7).
- For logic "0" more positive than logic "1", reverse inputs and input complements.
- All voltages given are referenced to terminal 1 or 12 (BIP-8211P) and 10 or 12 (BIP-8507P); i.e., the voltage at terminal 11 is +200V greater than at terminals 1, 10 or 12. Only one of the bias terminals is used in a given application.
- Modules may be mounted either in front of or behind the panel (Figure 5). Front mounting should be employed only when there is no back lighting. Rear mounting may be used whether or not back lighting is present. Following this rule will eliminate light showing through the panel.
- This applies to both modules.
- This applies to terminal 1 (BIP-8211P) or terminal 10 (BIP-8507).



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